Remarks

The Office Action mailed February 10, 2004, has been carefully reviewed and the following remarks have been made in consequence thereof.

Claims 1, 3-7 and 9-13 are now pending in this application. Claims 1, 3-7 and 9-13 stand rejected.

The rejection of Claim 1 under 35 U.S.C. § 102 as being unpatentable over Applicant's admitted prior art as set forth in Figure 3 is respectfully traversed.

Applicant has admitted that Figure 3 is a schematic block diagram of a known ignition system 70 for range 10. Ignition system 70 includes a power supply 42 feeding a junction box 72, an ignition module 56, and a burner 22. Junction box 72 includes a "line" or phase conductor 74, a neutral conductor 76, and a ground conductor 78. Ignition module 56 includes first and second inputs 80, 82 and an output 84 for sending signals to an igniter 44. First input 80 of igniter module 80 is coupled to phase or line conductor 74, and second input 82 of ignition module 56 is coupled to neutral conductor 76 of the electrical system. Burner 22 is connected to electrical system ground conductor 78, and ground conductor 78 is connected to junction box 72 and tied to neutral conductor 76 extending from junction box 72. Junction box 72 receives power from power supply 42, and line or phase conductor 74 supplies power to ignition module 56 through first input 80. Ignition module 56 supplies power to igniter 44 through a conductor 86, and igniter 44 ignites fuel delivered to burner 22. Once ignited, the burner flame acts as a diode for flame detection circuitry of ignition module 56, and igniter functions as an electrode for passing current through the burner flame and across gap 54. The current passes through burner 22 to ground conductor 78, which is connected to neutral conductor 76 through junction box 76. Current flows through neutral conductor 76 to ignition module second input 82 for feedback control of igniter 44 in response to current signals received at ignition module second input 82, and igniter 44 is activated as necessary for re-ignition of the burner flame. The return

path of current from burner 22 to ignition module 56 is illustrated by arrows in Figure 3. Notably, the applicant's Figure 3 does not show the use of an isolation transformer.

Claim 1 recites a method for installing an ignition module for a flame burner to an electrical system, wherein the method includes "coupling the phase conductor and neutral conductor to a primary winding of the isolation transformer...connecting the electrically isolated phase conductor from the isolation transformer to the first input of the ignition module...connecting the electrically isolated neutral conductor from the isolation transformer to the second input of the ignition module...."

Applicant's Figure 3 does not describe or suggest a method for installing an ignition module as recited in Claim 1. Specifically, Applicant's Figure 3 does not describe or suggest a method for installing an ignition module that includes coupling the phase conductor and the neutral conductor to a primary winding of the isolation transformer, connecting the electrically isolated phase conductor from the isolation transformer to the first input of the ignition module, and connecting the electrically isolated neutral conductor from the isolation transformer to the second input of the ignition module. Rather, and in contrast to the pending claims, Applicant's Figure 3 illustrates a phase conductor and a neutral conductor electrically connected directly to an ignition module, and does not describe or suggest the use of an isolation transformer, as recited in Claim 1.

The rejection of Claims 3-7 and 9-13 under 35 U.S.C. § 103 as being unpatentable over the combined teachings of Applicant's Figure 3 in view of Six et al. (US 4,519,771) is respectfully traversed.

Six et al. describe a method for detecting the operation of a burner using a flame detection system. The detection system includes an isolation transformer (6) connected in parallel with an ignition module (25). The isolation transformer has two inputs and two outputs. A first input is electrically coupled to a generator (7) through a matching resistor (8) which

provides a relative discoupling between the generator and the isolation transformer. The second isolation transformer input is electrically coupled to an AC source (5). The first isolation transformer output is electrically coupled to a semiconductor device (19), and the second isolation transformer output is electrically coupled to a burner (1) through a ground conductor (3). The ignition module (25) has two inputs and two outputs. The two inputs are electrically coupled to AC inputs (4, 5) respectively. A first output (26) is electrically coupled to an electrode (2) through a spark trap (29). The second output (27) is electrically coupled to the burner through the ground conductor.

Six et al. further describe that since the circuit uses a generator (7) to provide a voltage to the isolation transformer, the transformer can be made substantially smaller because the input to the transformer is approximately 200kHz instead of 50Hz which is provided from a typical AC source. Furthermore, the insulation surrounding the primary and secondary windings (6a, 6b) is simpler since fewer turns are required than a transformer supplied from the typical AC source. Accordingly, Six et al. describe a transformer operating at a high frequency to facilitate reducing costs and reduce operating power of the transformer.

Therefore, Six et al. do not describe an isolation transformer in series with an ignition module. Rather, Six et al. describe a transformer in parallel with an ignition module. Since the transformer described by Six et al. is in parallel with the ignition module, the transformer does not protect the ignition module. Furthermore, Six et al. do not describe a ground conductor electrically connected between the burner and the isolated neutral conductor.

Applicant respectfully submits that the Section 103 rejection of the presently pending claims is not a proper rejection. Specifically, neither Applicant's Figure 3 nor Six et al., alone or in combination, describe or suggest an isolation transformer electrically connected in series between an ignition module and an AC source. Moreover, Six et al. do not provide any incentive for making the claimed invention. In addition, the rejection appears to be based upon improperly using the specification of the present application as a template, and then improperly picking and

choosing various features from the cited patent in an attempt to reconstruct the structures recited in the presently pending claims. For these reasons, Applicant respectfully requests that the Section 103 rejection be withdrawn.

Moreover, obviousness cannot be established by merely suggesting that it would have been obvious to one of ordinary skill in the art to modify Applicant's Figure 3 according to the teachings of Six et al. More specifically, it is respectfully submitted that a prima facie case of obviousness has not been established. As explained by the Federal Circuit, "to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant." In re Kotzab, 54 USPQ2d 1308, 1316 (Fed. Cir. 2000). MPEP 2143.01.

Moreover, the Federal Circuit has determined that:

> [I]t is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has previously stated that "[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention."

In re Fitch, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992). Further, under Section 103, "it is impermissible . . . to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art." In re Wesslau, 147 USPQ 391, 393 (CCPA 1965). Rather, there must be some suggestion, outside of Applicant's disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicant's disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion nor motivation to combine the cited art, nor any reasonable expectation of success has been shown.

Furthermore, Applicant respectfully traverses the suggestion in the Office Action at page 3 that Six et al. teaches the use of an isolation transformer "to isolate the part of the circuit comprising the *burner and igniter* from the AC supply source..." which is cited to col. 1, line 63 through col. 2, line 12. Applicants respectfully submit that Six et al. at col. 1, line 63 through col. 2, line 12 actually recites that the isolation transformer is used "to isolate the part of the circuit comprising the *burner and the electrode* from the AC supply source...." Accordingly, as illustrated in Six et al., the isolation transformer is not used to isolate the igniter from the AC supply source as indicated in the Office Action.

Although it is asserted within the Office Action that Applicant's Figure 3 teaches the present invention except for disclosing an isolation transformer and the details of this transformer, and that Six et al. discloses an isolation transformer, no motivation or suggestion to combine the cited art has been shown. Applicant respectfully submits that neither Applicant's Figure 3 nor Six et al. describe or suggest an isolation transformer connected in series between a power supply and an ignition module. Since there is no teaching nor suggestion in the cited art for the claimed combination, the Section 103 rejection appears to be based on a hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Of course, such a combination is impermissible, and for this reason alone, Applicant respectfully requests that the Section 103 rejection of Claims 1-12 be withdrawn.

Further, and to the extent understood, no combination of Applicant's Figure 3 and Six et al., describes or suggests the claimed combination, and as such, the presently pending claims are patentably distinguishable from the cited combination. Specifically, Claim 1 recites a method for installing an ignition module for a flame burner to an electrical system, wherein the method includes "coupling the phase conductor and neutral conductor to a primary winding of the isolation transformer...connecting the electrically isolated phase conductor from the isolation transformer to the first input of the ignition module...connecting the electrically isolated neutral conductor from the isolation transformer to the second input of the ignition module...connecting

a ground conductor between the electrically isolated neutral conductor and a burner...connecting the single output to an igniter."

Neither Applicant's Figure 3 nor Six et al, considered alone or in combination, describe or suggest the method recited in Claim 1. Moreover, neither Applicant's Figure 3 nor Six et al, considered alone or in combination, describe or suggest connecting an electrically isolated phase conductor from an isolation transformer to a first input of an ignition module, connecting an electrically isolated neutral conductor from the isolation transformer to a second input of the ignition module, and connecting a ground conductor between the electrically isolated neutral conductor and a burner. Rather, and in contrast to the pending claims, Applicant's Figure 3 illustrates a phase conductor and a neutral conductor connected directly to an ignition module, and Six et al. describe a phase conductor and a neutral conductor that are electrically connected directly to an ignition module and to an isolation transformer, and, as such, the ignition module and the isolation transformer described in Six et al. are electrically connected in parallel with one another. Since the transformer described by Six et al. is in parallel with the ignition module, the transformer does not protect the ignition module.

Furthermore, Six et al. describe that the isolation transformer is used to isolate the part of the circuit that includes the burner and the electrode, and as such is not used to isolate the ignition module as recited in the pending claims. Furthermore, Applicant respectfully submits that it would not be obvious to add a second transformer to Six et al. to protect the ignition module without increasing the cost of the device, nor would it be obvious to remove the existing transformer without redesigning the detector which would also increase the cost, since Six et al. teach a transformer operating a high frequency in the detector side of the circuit to facilitate reducing costs and reducing an operating power of the transformer. Moreover, neither Applicant's Figure 3 nor Six et al., considered alone or in combination, describe or suggest a ground conductor electrically connected to the electrically isolated neutral conductor between the isolation transformer and the ignition module as recited in the claims. Accordingly, Claim 1 is submitted to be patentable over Applicant's Figure 3 in view of Six et al.

Claims 3-4, and 13 depend from independent Claim 1. When the recitations of Claims 3-4 are considered in combination with the recitations of Claim 1, Applicant respectfully submits that dependent Claims 3-4 are also patentable over Applicant's Figure 3 in view of Six et al.

Claim 5 recites a method for installing an ignition module for a gas-fired burner to an isolation transformer of an electrical system, the isolation transformer including a primary winding and a secondary winding, the electrical system including a phase conductor, a neutral conductor and a ground conductor, the burner connected to the ground conductor, the ignition module including first and second inputs and at least one output. The method includes "connecting the transformer secondary winding to the first input of the ignition module...connecting the transformer secondary winding to the ground conductor...and connecting the second input of the ignition module to the ground conductor".

Neither Applicant's Figure 3 nor Six et al, considered alone or in combination, describe or suggest the method recited in Claim 5. Moreover, neither Applicant's Figure 3 nor Six et al, considered alone or in combination, describe or suggest a method that includes connecting a transformer secondary winding to a ground conductor and connecting the second input of an ignition module to the ground conductor.

Rather, and in contrast to the pending claims, Applicant's Figure 3 illustrates that the neutral conductor is connected directly to the ignition module, and Six et al. describe that neither input to the ignition module is connected to ground. Moreover, neither Applicant's Figure 3 nor Six et al., considered alone or in combination, describe or suggest a ground conductor electrically connected to the electrically isolated neutral conductor between the isolation transformer and the ignition module as recited in the pending claims. Furthermore, Applicant respectfully submits that it would not be obvious to add a second transformer to Six et al. without increasing the cost of the device, nor would it be obvious to remove the existing transformer without redesigning the detector which would also increase the cost, since Six et al. teach a transformer operating a high frequency in the detector side of the circuit only facilitates reducing

costs and reducing an operating power of the transformer. Accordingly, Claim 5 is submitted to be patentable over Applicant's Figure 3 in view of Six et al.

Claim 6 depends from independent Claim 5. When the recitations of Claim 6 are considered in combination with the recitations of Claim 5, Applicant respectfully submits that dependent Claim 6 is also patentable over Applicant's Figure 3 in view of Six et al.

Claim 7 recites an ignition system that includes "a burner for producing a flame...a power supply...an electrical system comprising a ground conductor...an ignition module comprising a first input, a second input, and a single output, said output operatively coupled to said burner, one of said inputs coupled to said ground conductor, the other of said inputs coupled to said power supply...and an isolation transformer connected in series between said power supply and said ignition module".

Neither Applicant's Figure 3 nor Six et al, considered alone or in combination, describe or suggest an ignition system recited in Claim 7. Moreover, neither Applicant's Figure 3 nor Six et al, considered alone or in combination, describe or suggest an ignition system that includes an ignition module having a single output operatively coupled to a burner or an isolation transformer connected in series between a power supply and an ignition module.

Rather, and in contrast to the pending claims, Applicant's Figure 3 illustrates that the phase conductor and the neutral conductor is directly connected to the ignition module, and Six et al. describe that the phase conductor and the neutral conductor are electrically connected directly to an ignition module and to an isolation transformer, and, as such, the ignition module and the isolation transformer described in Six et al. are electrically connected in parallel with one another. Since the transformer described by Six et al. is in parallel with the ignition module, the transformer does not protect the ignition module.

Furthermore, Six et al. describe that the isolation transformer is used to isolate the part of the circuit that includes the burner and the electrode, and as such is not used to isolate the

ignition module as recited in the pending claims. Furthermore, Applicant respectfully submits that it would not be obvious to add a second transformer to Six et al. without increasing the cost of the device, nor would it be obvious to remove the existing transformer without redesigning the detector which would also increase the cost, since Six et al. teach a transformer operating a high frequency only in the detector side of the circuit facilitates reducing costs and reducing an operating power of the transformer. Moreover, neither Applicant's Figure 3 nor Six et al., considered alone or in combination, describe or suggest a ground conductor electrically connected to the electrically isolated neutral conductor between the isolation transformer and the ignition module as recited in the claims. Accordingly, Claim 7 is submitted to be patentable over Applicant's Figure 3 in view of Six et al.

Claims 9 and 10 depend from independent Claim 7. When the recitations of Claims 9 and 10 are considered in combination with the recitations of Claim 7, Applicant respectfully submits that dependent Claims 9 and 10 are also patentable over Applicant's Figure 3 in view of Six et al.

Claim 11 recites an ignition system including "a gas burner...an AC power supply comprising a phase conductor and neutral conductor...an electrical system comprising a ground conductor...an isolation transformer comprising a primary winding and a secondary winding, said primary winding connected to said phase conductor and to said neutral conductor, said secondary winding comprising an isolated phase conductor and an isolated neutral conductor...an ignition module comprising a first input, a second input, and an output, said output electrically connected to an igniter, said ignition module coupled in series with said isolation transformer, wherein one of said inputs coupled to said isolated neutral conductor, the other of said inputs coupled to said isolated phase conductor, said ground conductor coupled to said isolated neutral conductor between said ignition module and said isolation transformer.

Neither Applicant's Figure 3 nor Six et al, considered alone or in combination, describe or suggest the ignition system recited in Claim 11. Moreover, neither Applicant's Figure 3 nor

Six et al, considered alone or in combination, describe or suggest an ignition system that includes an ignition module coupled in series with an isolation transformer, wherein one of the ignition module inputs is coupled to an isolated neutral conductor, the other of the ignition module inputs is coupled to an isolated phase conductor, and a ground conductor is coupled to the isolated neutral conductor between the ignition module and the isolation transformer.

Rather, and in contrast to the pending claims, Applicant's Figure 3 illustrates a phase conductor and a neutral conductor connected directly to the ignition module, and Six et al. describe that the phase conductor and the neutral conductor are electrically connected directly to an ignition module and to an isolation transformer, and, as such, the ignition module and the isolation transformer described in Six et al. are electrically connected in parallel with one another. Since the transformer described by Six et al. is in parallel with the ignition module, the transformer does not protect the ignition module.

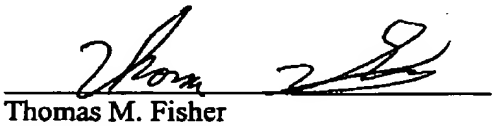
Furthermore, Six et al. describe that the isolation transformer is used to isolate the part of the circuit that includes the burner and the electrode, and as such is not used to isolate the ignition module as recited in the pending claims. Furthermore, Applicant respectfully submits that it would not be obvious to add a second transformer to Six et al. without increasing the cost of the device, nor would it be obvious to remove the existing transformer (6) without redesigning the detector which would also increase the cost, since Six et al. teach a transformer operating a high frequency only in the detector side of the circuit facilitates reducing costs and reducing an operating power of the transformer. Moreover, neither Applicant's Figure 3 nor Six et al., considered alone or in combination, describe or suggest a ground conductor electrically connected to the electrically isolated neutral conductor between the isolation transformer and the ignition module as recited in the claims. Accordingly, Claim 11 is patentable over Applicant's Figure 3 in view of Six et al.

Claim 12 depends from independent Claim 11. When the recitations of Claim 12 are considered in combination with the recitations of Claim 11, Applicant respectfully submits that dependent Claim 12 is also patentable over Applicant's Figure 3 in view of Six et al.

For the reasons set forth above, Applicant respectfully requests that the Section 103 rejections of Claims 1, 3-7 and 9-12 be withdrawn.

In view of the foregoing amendments and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,



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